



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7
25 FUNSTON ROAD
KANSAS CITY KANSAS 66115

April 12, 1988

MEMORANDUM

SUBJECT: Draft Action Memorandum for Tri-State Mining,
Jasper County, Missouri

FROM: Gary E. Kepko *gek*
SINV/EP&R/ENSV

TO: Craig Smith
SCOM/SPFD/WSTM

Attached for your review is a copy of the draft Action Memorandum for the Tri-State Mining site in Jasper County, Missouri.

The proposed action consists of the installation and periodic maintenance of an in-line filter/ion exchange system at the Ben Summers residence. Also, I would appreciate it if your group could complete Section V (enforcement action) of this Action Memorandum.

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SUPERFUND RECORDS

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April 4, 1988

MEMORANDUM

I SUBJECT Request for a Removal Action at Tri-State Mining,
Jasper County, Missouri - ACTION MEMORANDUM

FROM John C Wicklund
Director, ENSV

TO Morris Kay
Regional Administrator

II PURPOSE

The drinking water well on the property of Mr Ben Summers, Rural Route #1, Joplin, Missouri, has been shown to be contaminated with cadmium. The cadmium levels revealed in samples collected and analyzed by EPA exceed both the maximum contaminant level (MCL) and the removal assessment action level. This well serves a single family residence, however, at the present time, there is no alternate water supply. Based on this, a removal action under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendment and Reauthorization Act of 1986 (SARA), is appropriate to mitigate the continuing threat to public health and environment at this site. Proposed removal activities at this site will consist of the installation of an in-line filtration/ion exchange system including maintenance for two years.

III BACKGROUND

A Site Setting/Description

The Ben Summers residence is located east of Joplin, Missouri, about 1.9 miles north of Duenweg in Jasper County. Jasper County is directly across the state border from Cherokee County, Kansas.

Jasper County lies within the Tri-State mining district, which encompasses a 500-square mile area of Kansas, Missouri, and Oklahoma. Large scale mining of zinc and lead occurred in the area from the 1890's until the 1960's. During that time enormous amounts of mining wastes were accumulated, most of which were left on the surface as chat piles. Rainwater, percolating through the chat piles, contaminated the local groundwater as acid mine drainage. Acid mine drainage occurs when water contacts the oxidized ore, becomes an acidic solution and allows metals to solubilize. In addition to rainwater percolation, acid mine drainage results from water in contact with unmined ore and

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abandoned mine workings

Recent sampling of the private well at the Summer residence indicated concentrations of cadmium above acceptable levels

B Past Investigations and Mitigative Actions

This site was originally combined with the Tri-State Mining, Cherokee County site, but due to the large area covered by the combination, EPA headquarters requested that each site be considered on its own merit. With this in mind, a Preliminary Assessment (PA) was completed for the Tri-State Mining, Jasper County site on March 3, 1986. A Site Investigation (SI) was conducted and completed on April 4, 1986. Some of the wells sampled during the SI revealed elevated levels of lead (79 parts per billion [ppb]), zinc (8000 ppb), and cadmium (27 ppb). Additional samples were collected in August 1986 to verify the previous samples and based on these field investigations, a Hazard Ranking Score (HRS) of 46/33 was calculated.

On November 2, 1987, a request to perform a removal assessment of the Tri-State Mining, Jasper County, received by Emergency Planning and Response (EP&R) from Superfund (SPFD). After reviewing the available data, it was determined that two wells (including the Summers well which is the subject of this memo) be resampled. This sampling was conducted on February 22, 1988 and the results were available on March 29, 1988. The results showed that the levels of cadmium in the Ben Summers well exceeded the removal action level by more than two times. None of the other data collected to date reveal levels higher than the removal action level.

No mitigative actions have been taken to date at this site. An emergency action was performed under the Removal program at the Tri-State Mining, Cherokee County site in May, 1986. The action consisted of the installation of in-line filter/ion-exchange systems on affected household drinking water wells. The systems are still on line and operating.

C Quantities and Types of Substances Present

The total amount of waste involved is difficult to determine because of the large area involved. The groundwater is contaminated and the Ben Summers well showed levels as high as 39 ug/l which is over two times higher than the removal action level.

D NPL Status

This site is not on the National Priority List, however it is being proposed to be added to the NPL.

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IV THREAT

Cadmium affects the respiratory system, lungs, kidneys, prostate, and blood. It has a very long half-life and is retained in the kidneys and liver. Symptoms of cadmium poisoning resemble gastro intestinal-type poisoning, i.e., nausea, salivation, vomiting, diarrhea, abdominal pain and discomfort. It is a carcinogen via the inhalation route and its EPA carcinogen classification is B1. The following are the various health values for cadmium:

Removal action level	17 ug/l
Maximum contaminant level	10 ug/l
10-Day health advisory	43 ug/l
Drinking water equivalent level	17 ug/l

The value seen in the Ben Summers drinking water well, 39 ug/l, exceeds all of the above levels except the 10-day health advisory level.

B Previous Actions to Abate Threat

No actions have been performed at this site in the past to abate the threat.

C Current Actions to Abate Threat

No actions are currently underway to abate the threat.

V ENFORCEMENT ACTION

No federal enforcement actions are underway at this time.

VI REGULATORY/STATUTORY CRITERIA

Pursuant to section 300 65(b)(2) of the National Contingency Plan (NCP), the following information is provided to support the appropriateness of this removal action:

300 65(b)(2)(i) - Actual or potential exposure to hazardous substances, pollutants, or contaminants by nearby populations, animals, or food chain

300 65(b)(2)(ii) - Actual or potential contamination of drinking water supplies or sensitive ecosystems

Section 104(a)(i) of CERCLA authorizes federal removal or remedial action unless it is determined that such removal or remedial action will be properly done by the owner or responsible party. To insure that timely action is taken to mitigate the risk

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to the residents, a federal response is warranted

VII PROPOSED PROJECT AND COSTS

A Objectives of the Project

The objective of this project is to reduce or eliminate the ongoing toxic metal exposure to the Ben Summers family. This will be accomplished by the installation of an in-line filtration/ion exchange system.

The costs associated with the project are the costs of installing and maintaining the system, including periodic addition of ion salts and cleaning of the unit. Additionally, a number of samples will be collected and analyzed to insure the system is removing the metal contamination to below hazardous levels.

B Costs

Extramural

Ion exchange unit	\$2,000
Regeneration unit	8,000
Plumbing supplies	1,500
Labor	11,000
Analytical	6,000
20% Contingency	5,700

Subtotal	\$34,200
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TAT	\$8,000
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Intramural

EPA Direct	\$4,000
EPA Indirect	5,800

Subtotal	\$9,800
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Total Project Cost	\$52,000
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The action proposed in this project is consistent with any remedial action to be taken in the future.

VII REGIONAL RECOMMENDATION

Since conditions at the Ben Summers Residence, Tri-State Mining, Jasper County site meet the NCP Section 300.65 and Section 104(a)(1) of CERCLA criteria, I recommend your approval of a removal action. In addition, I recommend you establish a project ceiling of \$52,000 of which \$34,200 is for extramural clean-up contractor costs to mitigate the existing hazard.

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Approve _____ **Date** _____